Witness Name: Yvonne Doyle

Statement No. 1

Exhibits: YD2/01-67

Dated: 17 October 2023

UK COVID-19 INQUIRY

WITNESS STATEMENT OF YVONNE DOYLE

Introduction

1. This is my first statement to the Inquiry as a result of a Rule 9 request from the Inquiry on 19 September 2023. I wish to say at the outset that I am committed to assisting the Inquiry with their important work and to look at any lessons that can be learnt to enable the country to prepare for dealing with the consequences of the next pandemic when it arrives. However, as a result of the short timescale I have been given to respond to what is a detailed request for evidence, I have not been able to prepare as fully as I would have liked, and I have not been able to fully consider the significant numbers of documents to remind myself of the issues I have been asked to deal with.

2. In addition, this statement is provided in a personal capacity as I am now retired since April 2023 from full time professional practice. Consequently, I have no access to legacy systems in the organisations that have inherited these from Public Health England (PHE). Matters within my statement rely on a mixture of my own memory, documents exhibited to this statement that colleagues at UKHSA have helped me to locate, and with the input from UKHSA colleagues that I have sought assistance from to check some factual issues. I have already contributed,

in a limited capacity, to the UKHSA corporate statement for Module 2 **[Exhibit: YD2/01 INQ000251906]**.

3. I have been requested by the Inquiry to provide information on a range of topics including the purpose of Public Health England (PHE); my roles in the pandemic; the services offered by PHE during the pandemic with reference to the early months; disparities in health as witnessed in the pandemic; sources of advice and data; and lessons to be learnt. I endeavour in this statement to support the Inquiry in understanding the circumstances and actions undertaken in the period covered by Module 2, with particular emphasis on the timescale from January 2020 to July 2020 when, as Medical Director of Public Health England, I undertook the role of senior responsible officer (SRO) for the input of that organisation to the pandemic on behalf of the Chief Executive to whom I reported. I continued as Medical Director for Public Health England until the transfer of its functions into UKHSA, OHID and NHS England in October 2021, and then took on the role of NHS Medical Director for Public Health at NHS England until my retirement in March 2023.

4. I currently serve as a non-Executive Board member of an NHS teaching hospital in London and as a Trustee of a charity for homeless persons.

Background and specific professional experience

5. My qualifications include a medical degree (MB BCh BAO), a doctor of medicine (MD), a masters in public health (MPH), a diploma in child health (DCH), all from University College Dublin; I am a Fellow of the Royal College of Physicians of Ireland (FRCPI), a Fellow of the Faculty of Public Health (FFPH- of the Royal College of Physicians of the UK) and a Fellow of the Faculty of Public Health Medicine (FFPHMI- Royal College of Physicians of Ireland). I hold a diploma in health economics from the University of Aberdeen. I am a Fellow of the UK Academy of Medical Sciences. I hold a visiting chair in public health at University College London.

6. I have undertaken higher specialist training as a public health doctor in two countries and following consultant posts in London I was appointed a Director of Public Health in (the then) Merton Sutton and Wandsworth Health Authority. Subsequently I held roles as Director of Public Health in Southwest and Southeast

London Health Authorities respectively, NHS Medical Director and Department of Health Regional Director for Public Health in Southeast England, and subsequently my role was extended to the South of England. As the system changed in 2013 I was appointed as PHE Regional Director for London and, as an integral part of that role, Statutory Health Adviser to two London Mayors between 2013 and 2019.

7. I provided regional public health leadership to the NHS for implementing public health plans during the 2009 flu pandemic. While in London the regional health protection service was part of my remit to provide infection surveillance and control in community and hospital settings including outbreak management and progress 'peacetime' programmes. Relevant to London therefore I led with that team and relevant partners in the city, the coordination and implementation of regional work to reduce TB and HIV. My team and I were part of the senior response to the threat of imported Ebola in London during 2014. I personally instigated through the then (and current) Mayor, Sadiq Khan, the basis of his city health inequalities strategy and provided the public health regional service input to the London Resilience Forum.

8. In June 2019 I was appointed through competition to the role of Medical Director and Director of Health Protection for Public Health England. Between June and December 2019 I dealt with a number of serious incidents which took several weeks to resolve including an outbreak of Listeria affecting NHS patients, a complex outbreak of monkeypox (now MPox); and support to the FCDO in repatriation of British nationals from Africa where an outbreak of Lassa Fever was active.

9. I have served on the Joint Committee for Vaccination and Immunisation between 2003-6; been a technical adviser to the World Health Organization (WHO) on healthy cities between 2004-8, and as a Trustee of the Royal Society for the Prevention of Accidents between 2013-18. Since 2008 I have provided technical advice to the WHO and European research programmes on healthy ageing, city health including communicable and non-communicable diseases, and sustainable cities. I was a contributor to the Health of the Public 2040 (Academy of Medical Sciences, 2017); I chaired the Four Nations Advisory Group to the four Chief Medical Officers (CMOs)of the UK on genomics in 2021; and I was a reviewer for

the Technical Report on the COVID-19 pandemic by the UK CMOs (December 2022).

My roles between January 2020 and February 2022

10. My role changed over this period. There were four phases in the role namely:

i. The Medical Director role for Public Health England between June 2019 and January 2020

ii. The role of Medical Director & SRO for Public Health England's input to the pandemic between February and July 2020

iii. The Medical Director role for Public Health England between August 2020 and October 2021

iv. The (new) role of National Medical Director for Public Health in NHS England between October 2021 and March 2023.

11. As can be seen above between October 2021 and March 2023 my role was to re-build the public health professional service and support the NHS in public health service delivery within NHS England and its associated structures. As such it is important for the Inquiry to note that I did not have a formal role in the COVID-19 pandemic for the period October 2021 and February 2022.

12. The period between mid-2019 and January 2020 was one of transition for Public Health England (PHE). Prior to my appointment the role of Medical Director and Director of Health Protection had – since around 2018 - encompassed the national infection service including specialist laboratory services. Following a review prior to 2019, it was agreed by the then Board of PHE to initiate a (new) PHE National Infection Service (NIS) to which a Director was appointed. This role was announced as an interim appointment in November 2018, commencing in April 2019 and appointed permanently in November 2019. My role as Medical Director retained the Chemicals, Radiation and Environmental Services at PHE Chilton and the emergency preparedness team including the small behaviour management and entomology teams, based at Porton Down.

13. In effect both the Medical and NIS Directors had commenced their roles between six and nine months of the pandemic starting, the structural change had not fully bedded and the period prior to January 2020 was demanding. The regional health protection teams who handled community outbreaks and liaised with local government and the NHS remained as the responsibility of the seven PHE Regional Directors of Public Health, who reported to the Deputy Chief Executive and Chief Operating Officer.

14. I found out in July 2019 that a senior cadre of leaders who were ready and rota'd to handle the strategic leadership of a serious national outbreak were thin on the ground and had not undergone training recently - or at all. These are not incident directors, of which we had a list – but those who, in a Strategic Incident Director role, would provide suitable senior oversight and ensure complex incidents were led according to our National Incident Response Plan. I instigated – with the help of colleagues in PHE, DHSC and Government Office for Science (GO-Science), a short series of training which broadened our leadership somewhat for the early months of 2020. The sessions were successful and provided some additional senior leadership capacity between national and regional teams in the early weeks of the pandemic. The M1 corporate statement [**Exhibit: YD2/02 INQ000148429**] paragraphs 75-78 deal with the changes as a result of the Health & Social Care Act 2012 and the movement of public health staff into local government.

15. In the period between January and early February 2020 my roles as Medical Director were first: based on the international epidemiological and scientific information available at that time, informing the Chief Executive of PHE, CMO, DHSC, NHS and, when requested, briefing the Secretary of State and any other Ministers about the dynamic risk assessment to the UK based on emerging patterns of international transmission. The alerting by PHE of a potentially serious threat of a pandemic came via my office to the above parties on 2nd January 2020.

16. My second role was to work closely with the National Infection Service and the NIS Director, Professor Sharon Peacock, to ensure a scientific, clinical and epidemiological response was ready. A full national incident response was stood up on 8th January 2023 including a rota of four senior incident directors and microbiological, epidemiological and communications backup across PHE

Collindale, Porton Down and Wellington House in Waterloo, London, where PHE's headquarters were located[1].

17. I was requested by Duncan Selbie, the Chief Executive of PHE, on 18th February to undertake the role of SRO for the internal coordination of PHE's national incident on COVID-19 **[Exhibit: YD2/03 INQ000320597** The role was supported by a daily COVID-19 cabinet which was stood up and chaired by the Chief Executive and included senior professional and administrative members of the PHE pandemic response. I undertook this role continuously and single-handedly until August 2020 when the arrangements changed as a result of the instigation of the (then named) National Institute for Health Protection, formed to prevent a second wave of the pandemic. I continued as Medical Director for that part of the new system which encompassed the Public Health England experts until October 2021.

18. I was not a member of COVID-19 SAGE until early April 2020 and continued that membership until COVID-19 SAGE ceased to meet in 2021.

19. Public Health England was an executive agency of the Department of Health and Social Care (DHSC); fulfilled the Secretary of State's statutory duties to protect health and address inequalities and executed the government's power to promote the health and wellbeing of the nation. I refer to the M1 corporate statement **[YD2/02 INQ000148429]** to assist the Inquiry in understanding the remit given to PHE during the time of its existence by the government and DHSC, the sponsoring department. Although these are issues explored in M1, it is critical that the Inquiry understand this when considering and then raising questions about the action and capability of PHE during the time period in the scope of Module 2. I specifically refer the Inquiry to Section 2: An introduction to PHE; Section 3: PHE's EPRR functions; and Section 5: The Civil Contingencies Act. I will refer to other parts of the Module 1 corporate statement where necessary in my statement to aid the Inquiry's understanding of PHE and its remit and the Module 2 corporate statement [**YD2/01 INQ000251906**] where relevant to do so. My statement either includes a reference to the relevant sections or the copied paragraph itself.

[1] The initial cells were: epidemiology and surveillance; virology/ laboratory functions; clinical advice; guidance.

20. Under the section of PHE's annual remit letter (from DHSC) to protect the public from infectious diseases, PHE provided the national infrastructure for health protection including, but not limited to: an integrated surveillance system; providing specialist services such as specialist diagnostic and reference microbiology; investigation and management of local and national outbreaks of infectious disease, exercising and training for emergency preparedness. The protection function also encompassed scientific advice and testing for environmental health, chemical and radiation threats. The 2020-21 remit letter is exhibited **[Exhibit YD2/04 INQ000090337].**

21. As I understand it the DHSC remit was-and is- to support Ministers in devising public health policy taking account of relevant evidence. Public Health England's role was to provide epidemiological information on national and international trends in health; and to provide the science and evidence to inform the implications for national policy. The Department could then advise Ministers on policy options. It is always for Ministers to decide on progressing such advice and options or not. See paragraph 65 (below) of the M1 Corporate statement relating to the PHE and DHSC role. I would also direct the Inquiry to paragraph 87-90 [**INQ000148429**] regarding PHE's accountability to DHSC.

65. The Secretary of State was given a duty to take such steps as considered appropriate for the purpose of protecting the public in England from disease or other dangers to health. PHE was tasked with performing the function of undertaking protective and preventative work on public health matters which require a national overview. Thus, PHE had a supporting role in relation to DHSC in key parts of the delivery of this function and thus a leading role on specific tasks as allocated to it through the remit letter. For example, DHSC led on input to the National Risk Register, where necessary commissioning scientific advice from PHE. PHE led on the operational aspects of providing specialist public health advice and input to the response to incidents but DHSC's Operational Response Centre and its predecessors would run oversight groups.

22. I have been asked to consider my own view and that of PHE on the role of testing and tracing in the pandemic response. I would direct the Inquiry to the Module 1 corporate statement which sets out details of PHE's laboratory sites at paragraph

126-130 and paragraph 203-208 [INQ000148429] for details and functions of the specialist microbiology services for context to the paragraphs below. There was early innovation via PHE virology collaborating with international partners in being able to sequence the genome for the virus and develop a sufficiently reliable UK test. Testing began in the UK on 21st January 2020, giving scientists confidence that PHE could test and identify the first cases (that occurred in late January 2020) and the virus was subsequently grown in February 2020 from those cases to support research and testing both nationally and internationally (see paragraph 394 of the Module 2 Corporate statement [INQ000251906] below regarding PHE's development of a test).

394. In this section I will provide an overview of UKHSA's role in developing a specific test for COVID-19. PHE had developed a pan-coronavirus molecular test or 'assay' following the global outbreak of SARS in 2003. This assay allowed for the detection of any coronavirus and detected the first case of MERS in the UK in 2012. PHE had also developed specific assays for individual known coronaviruses including four endemic coronaviruses, and additionally SARS and MERS. Once the genome was released in January 2020 PHE's scientists worked with global virology colleagues to develop a specific test for SARS-CoV-2.

23. Although there were no confirmed cases until late January 2020, there was a huge demand particularly on the port health and repatriation services to risk assess and arrange follow up of travellers and repatriated and isolated persons. Port health amounted to hundreds of daily flights from all over the world, including China and the far east, reflecting the UK's position as a global transport hub. Airports had not, however, been set up to operate during major epidemic conditions and so the numbers of staff in PHE increased at the major ports to support the Border Force and assess travellers with symptoms. At this time the international evidence base did not extend to the potential for asymptomatic transmission. Other demands came from Channel bus trips where people developed symptoms suggestive of COVID-19. Many hundreds of people required follow up by the field services of PHE and many required testing (which was being carried out by PHE).

24. Consequential on these demands, it became clear that innovation in practice was needed and web-based contact tracing linking to a call centre solution was initiated in late February, alongside texting arrangements agreed for the first time

with airlines to enable follow up (with occasional refusals to cooperate). This was occurring while complex repatriations were also demanding on site presence and follow up from several health protection teams simultaneously.

25. WHO declared a Public Health Emergency of International Concern on 30th January 2020 and initial messages from WHO became regionally amplified by March 2020, when eventually a global pandemic was called internationally by them. Our teams were in touch from early January with WHO scientists and daily via the International Health Regulations. We expected a pandemic to be called sooner than it was, and PHE was already increasing its testing capacity at this point in March (see below) and did not scientifically diverge from the need to test in developed countries. I am not aware that our teams expressed anything other than a universal need to increase testing **[Exhibit: YD2/05 INQ000223394** - lab testing capacity and prioritisation of testing paper**] [Exhibit: YD2/06 INQ000119505** -projected future capacity paper**]**.

26. In January 2020 four phases of a pandemic were proposed by the Chief Medical Officer for England and accepted by Government based on previous pandemic custom and adapted for the novel virus circumstance, namely Contain, Delay, Scientific and Mitigate. The main purpose, articulated in SAGE papers of the period **[Exhibit: YD2/07 INQ000052106] [Exhibit: YD2/08 INQ000087503]** was to reduce the numbers entering the NHS in the wake of a serious flu season and 'flatten the curve' until the summer of 2020. The actions for PHE within the Contain phase were: developing a workable test and responding to early potential cases; developing early guidance; action at ports to develop and follow up on incoming cases who might meet the case definition, follow up of contacts of all cases, epidemiological surveillance and informing the WHO IHR system, contribution to supported isolation of those deemed to need this pending incubation periods, and contribution to cross government preparedness. PHE was not remitted to undertake full population testing; its set up encompassed specialist laboratories including the diagnostic testing for rare pathogens.

27. PHE's specific remits from the Secretary of State for Health included acting as the UK's National Focal Point under the International Health Regulations (IHR) to liaise with other countries and running a network of specialised and reference microbiological laboratories including UK civilian high-containment facilities. This served to deliver specialist national infectious disease functions (the National

Infections Service) including specialist epidemiology teams and laboratories grouped around specific types of infections. It included surveillance and monitoring, and vaccination and immunisation programmes. All of these functions operated throughout the whole pandemic; however, PHE was not set up – in manpower capacity, workforce, facilities or funding - to address a pandemic of the scale of COVID-19 and mass population-level testing (as previously referenced above).

28. A paper from modellers to SAGE in February 2020 indicated that by the time a fourth-generation contact (i.e. a case and three onward contacts) had arisen in the community, the number of contacts overall generated by each of the three related to the original case was likely to be close to 2,000 persons **[Exhibit: YD2/09 INQ000119729] [Exhibit: YD2/10 INQ000119730]**. They also concluded that: "*Where cases of higher generational numbers become predominant case and contact isolation (CCI) is expected to be of limited benefit outside of certain special cases and should be discontinued. The current PHE based capacity to provide CCI can be expected to be not sufficient, or sustainable, at the limits of controlling higher rates of incursions into the UK and should be enhanced*". They recommended that a practical and reasonable level of enhancement should be to enable a 10-fold increase in capacity to provide effective CCI controls.

29. At this point although all available PHE staff were working on various elements of the pandemic including on testing and tracing, it was a factual reality that much more capacity would be required than PHE had been commissioned and funded to provide. The modellers also recommended that CCI should be discontinued when person to person spread was epidemiologically demonstrated to be dominated by second and subsequent generational cases, or, by the contact tracing effort exceeding the management of 8,000 CCI events per day as a proxy.

30. I have been referred to a SAGE note of 18 February 2020 **[Exhibit: YD2/11 INQ000061516]** that discussed PHE's capacity for contact tracing. This modelling paper referred to five 'introductions' per week and the likely number of onward contacts. The local health protection teams of PHE contacted thousands of actual cases and their potential contacts in the early month of the pandemic (see below). The record of five cases is a misunderstanding that was not accurately corrected at the time.

31. As stated, PHE was remitted to undertake specialist laboratory work including a national reference laboratory. In January 2020 this amounted to eight public health microbiology laboratories (seven jointly with the NHS in England, and PHE Collindale). PHE Porton operates at a highly specialised and containment laboratory for rare pathogen, please see paragraph 126-130 of the M1 corporate statement [INQ000148429]. The work created the early-stage assays (prior to commercial development) and then maintained the capacity for primary diagnostic testing for such newly emerging viruses through this network of public health laboratories across England; PHE also operated the genomics laboratory which sequenced and identified genotypes to confirm links between cases and subsequently identified SARS-Cov-2 variants of concern.

32. PHE had already developed a pan-corona virus workable test early in January 2020. However, SARS-Cov-2 – the corona virus of COVID-19 – was a novel entry to the UK. Its behaviour was unknown, including fatality rates and ability to transmit in the community and in these circumstances, an emerging pathogen is designated as a high consequence infectious disease (HCID), requiring specialist containment labs. The decision was taken by senior infection /public health specialists in the four nations, and this occurred on 10th January 2020 as an interim measure. This decision was endorsed by all senior parties in PHE, the Chief Medical Officers and NERVTAG. Previous HCID status infection examples are MPox and Ebola virus. Further, the Government's Advisory Committee on Dangerous Pathogens agreed, giving a provisional classification of Hazard Group 3, which they confirmed at meeting in mid-February. The consequence of the decision was however to limit the number of laboratories available in the country with the necessary combination of specialised facilities and trained and competent staff to undertake diagnostic testing in them for this newly identified HCID pathogen. The initial limitation of available laboratories for testing was not as a result of PHE pursuing a centralised testing approach as suggested but as a result of a joint decision taken by senior public health specialists at a time when very little was known about this emerging pathogen.

33. Recognising this constraint to scaling up reference testing, PHE via its National Infection Service – with my agreement – made a formal request on 28th February 2020 to the Advisory Committee on Dangerous Pathogens (ACDP) through the Health & Safety Executive to test at a lower level of containment in order to extend capability to include external laboratories. This PHE request was the key to

opening the laboratory capacity more widely and permission was granted on 1st March by HSE to do so, subject to guidance on safety being prepared and communicated jointly by HSE and PHE, which we did.

34. On 16th March 2020 (see paragraph 392 of the M2 corporate witness statement below) the opinion of ACDP, was that SARS-Cov-2 could be downgraded from a HCID, and this was endorsed independently by the 4 Nations HCID Definition and List Group. Any laboratory who could provide the test at "Containment Level 2 plus" with appropriate controls could engage in testing. Offers of assistance were welcomed by PHE – including public, academic and private sectors- and in mid-March a seminar was hosted in No 10 to scope how more capacity could be brought on in testing at scale. I was not party to that process, but senior members of our national executive, including the Chief Executive and Director of the National Infection Service were and responded positively to that approach. To the best of my knowledge, I was not approached by the Crick Institute.

392. On 16 March 2020 a group of infectious disease experts from the four nations reviewed up to date information against the UK HCID criteria. They determined that further data on cases meant that there was more information available about mortality rates (lower overall than most other current HCIDs), and there was greater clinical awareness as well as a specific and sensitive laboratory test.

35. On 7th March 2020 in response to a request from the Secretary of State for Health, PHE scientists provided information on the current and forward testing capacity within PHE and the NHS **[Exhibit: YD2/12 INQ000223394].** This outlined that: (a) approximately 2,100 tests per day were being undertaken since 27th February 2020 and a further 1,500 per day would come on stream by mid-March; (b) PHE was already intending to bring a range of commercial tests on stream by April 2020 and had completed 26,000 tests by 7th March, with capacity to spare; (c) scientists were looking forward to the addition of commercial tests as industry developed instrumentation that could add up to 4,000 extra capacity per day; (d)PHE would support industry in any assessments of testing SOS required and (d) clinicians and scientists in PHE and the NHS were seeking daily improvements to increase capacity but advised that capacity would be overwhelmed within eight weeks due to the magnitude of pandemic.

36. Consequently, the Director of PHE's National Infection Service proposed a strategy to increase national testing capacity that was agreed with CMO, GCSA and DHSC Ministers (and confirmed with Number 10) on or around 16 / 17 March 2020. The first element of which was for PHE and the NHS to increase testing in what subsequently became known as "Pillar One" from 10,000 tests per week to 25,000 tests per day of which PHE's contribution was over 5,000 tests per day. This focused exclusively on testing capacity for the NHS and the following other groups: 1) people in ICU with pneumonia; 2) people sufficiently unwell who were admitted to hospital with pneumonia; 3) support for outbreak investigations; 4) if spare capacity, for key workers at the discretion of individual NHS Trusts. PHE formed a partnership with Roche Diagnostics to roll-out their new PCR test as part of the push to 25,000 per day. I was not personally involved in these discussions and arrangements but do not recall any sense of PHE trying to centralise with either the private or any other sector at this stage, once safe handling of the virus was agreed by all relevant parties. I understand that de-facto control and co-ordination of the national testing effort was transferred to DHSC (including the Office for Life Sciences, a joint unit shared with BEIS) following the national testing summit at Number 10 on 17 March 2020 **[Exhibit: YD2/13 INQ000223436] [Exhibit: YD2/14 INQ00055915].** However, a senior member of the PHE Executive, Professor John Newton was also stood up to provide expert scientific advice on testing to the Secretary of State and Lord Bethell in this period.

37. The move from Contain to Delay was not my decision nor that of PHE. A Cabinet Office briefing in early March 2020 to government noted that "the spread of COVID-19 has accelerated in the UK and advice from SAGE is that the response to the virus will soon need to move from contain to delay". **[Exhibit: YD2/15 INQ000223368] [Exhibit: YD2/16 INQ000223370].** This briefing included considerations of which actions would be most effective in that phase and what mitigations might be required across government. PHE continued to contribute to, and support scientific advice on this matter **[Exhibit: YD2/17 INQ000223371].** SAGE discussed targeted testing (9th March 2020) and we were guided by their recommendations **[Exhibit: YD2/18 INQ000320598]**

38. PHE continued to serve on testing and contact tracing in the Delay phase although the nature of these services changed **[Exhibit: YD2/19 INQ000320599]** In March 2020 PHE continued to provide around half of the total daily testing

capacity. The case definition moved away from reliance on diagnostic testing to using testing to enable clinical decisions. This meant that testing was targeted to specific populations. They included people sick enough to be admitted to hospital; people with symptoms in vulnerable groups; suspected nosocomial infection; NHS staff who were patient-facing; clusters of importance, including those associated with care homes, schools and universities where testing would lead to a decision or intervention. The scale and pace of developing a workable test, the increase in testing numbers and the level of tracing by PHE was unprecedented between February and March 2020. However, SPI-M-O had noted on 10th February that it was a realistic probability that outbreaks outside China could not be contained solely by isolation and contract tracing **[Exhibit: YD2/20 INQ000320600]**. PHE had already highlighted that its own capacity for both testing and thus contact tracing would be overwhelmed within two months (see above). Furthermore, contact tracing is most effective when the prevalence of an infection in the population is low. It has limited impact when infection is widespread particularly where the links to known cases are unclear. The Technical Report **[Exhibit: YD2/21 INQ000087225** Chapter 7: contact tracing and isolation. Text and Points 1& 2, Reflections**]** led by the four UK CMO's and to which I contributed makes this point and what can and cannot be expected of tracing in various stages of a pandemic.

39. Consequently, PHE scientists and senior clinicians at the point of approaching lockdown in March 2020 advised the DHSC and therefore government that our roles in this stage would be:

i. That PHE continue to contain the transmission of the virus from cases to their contacts for as long as possible, which was supported by SAGE.

ii. Contact tracing was therefore targeted to have most effect and were dependent on testing results targeted to prevent transmission to those at greater risk of poor health outcomes. This aimed to reduce morbidity and mortality and to limit the spread in situations which had a high potential for transmission either to a large group or to a large area.

iii. PHE had developed a new web-based tool for tracing which increased capacity.

iv. The service at ports changed as travel volumes changed. PHE agreed the clinical criteria to enable them to manage symptomatic patients away from ports to a

place of isolation and expanded the nation-wide model of risk assessing flights coming into the UK and supported ports across the country.

v. PHE took an increasing role in evaluating commercial assays as they are developed and ensured that they were at least as accurate as the PHE RT-PCR assay.

vi. PHE took a major role in the development of a national capability for genome sequencing of SARS-COV-2 later in 2020, which was subsequently used successfully to inform public health interventions.

vii. PHE had other roles in in this phase such as supporting communication fielding spokespersons and guidance including advising SAGE on measures such as school closures, mass gatherings, self-isolation and social distancing. PHE also supported Local Resilience Forums (LRFs).

40. Population immunity arises naturally or via vaccination. I am not aware of a strategy on behalf of PHE, SAGE or Government to 'pursue' herd immunity through denying the population any available interventions. I have been asked about the 'failure to scale up' testing and a deliberate pursuance of herd immunity in the early months of 2020. Testing was scaled up in the early months as explained above. Vaccination was offered to the population as soon as suitable products were available to induce immunity and save lives.

41. As stated in paragraph 38 above more capacity was required to meet demand for mass testing and a national testing strategy was initially devised by PHE, subsequently adopted, and developed by government (published by DHSC early April 2020) that scaled to industrial levels. PHE enabled nine additional NHS labs (Barts Health, St Georges, HSL, Guys and St Thomas', King's, Oxford, Leicester, Sheffield and Liverpool) in England to provide extra capacity by 13th March, giving a daily test capacity at that point of 3200.

42. A national testing strategy was agreed on or around 17th March 2020, endorsed at the No 10 seminar on testing, delivery of which was supported by PHE and others **[Exhibit: YD2/22 INQ000106325] [Exhibit: YD2/23 INQ000223435].** A three-point plan requested PHE to deliver 25,000 tests per day as described above; **[Exhibit: YD2/13 INQ000223436]** with the Office for Life Sciences working with industry to deliver mass testing of health care workers and home testing, which subsequently

became known as “Pillar Two” of the national strategy. A fourth ambition on serology related to surveillance carried out using a commercial antibody test run at PHE Porton Down, which had been established early in the pandemic.

43. PHE was never intended to operate at industrial level but did continue to contribute to the national capacity and importantly provided expertise in genomics and evaluating new commercial antibody and antigen assays, both in accordance with its specialist remit. Although there were political concerns that more testing capacity was required, PHE contributed as outlined above, to a major increase in testing capacity through an alignment with the private sector and pushed forward the reconsideration of the HCID status to allow the private sector to be involved as soon as possible.

44. PHE was in contact with Germany throughout the pandemic and had a previous agreement to support training at the Robert Koch Institute. The situation in South Korea was under constant review including the epidemiological profile of the pandemic there and comparisons of testing strategies throughout February and March 2020. Analysis in the National Infection Service in May 2020 found that UK testing trajectories were approaching those of South Korea up to mid-March 2020 and then dropped off in early April due to serious international shortages of required components such as reagents and associated consumables such as swabs. There was little if no in-country UK manufacturing capability for any of these. As described below, I was requested by UKHSA to undertake an international review including of European models (See paragraph 487 of the M2 Corporate Statement below).

487. In addition, Professor Yvonne Doyle, Director for Health Protection in PHE was appointed by Baroness Dido Harding, NHSTT Executive Chair, to lead a piece of work to inform the design of the operating model of UKHSA. This involved interviewing senior influential figures working in the field of public health from other countries on their approaches, including on testing. ***[Exhibit: JH2/390 - INQ000223487].*** *Professor Doyle interviewed KDCA on 18 March 2021 and RKI on 18 March as part of the international scoping for planning the new UK agency. Other countries included the Netherlands, Norway, France, Canada, Singapore, and Japan.* ***[Exhibit: JH2/391 – INQ000223488]****. The results of this international*

scoping were discussed at the UKHSA Transition Extraordinary SteerCo meeting on 16 April 2021 ***[Exhibit: JH2/392 – INQ000251904]***.

45. The situation in Germany was enabled by its federal approach and importantly, local ability to surge manpower and resources. There was extensive use of 'sleeping contracts' with a series of private laboratories with access to the necessary testing components. Outbreaks in Germany were also more contained to certain regions – a finding, which was evident in several countries of Western Europe, from PHE's surveillance during the first wave.

46. A review in 2021 which I undertook on behalf of UKHSA made direct contact again with both South Korea and Germany (and several other jurisdictions) **[Exhibit: YD2/24 INQ000223487] [Exhibit: YD2/25** **INQ000223488** **[Exhibit: YD2/26 INQ000251904]**. A further formal interaction which I joined, solely with South Korea in early 2021, also provided for exchange of experience. There was a clear and agreed national strategy and good preparedness in South Korea building on the experience of the MERS Cov outbreak there in 2016.

47. To continue the international connectedness of the new system I instigated and saw through a formalised agreement with the European Centre for Disease Control in the light of new European relationships post UK Exit from the EU. This was signed by the Chief Executive of the UKHSA and the Director of the European Centre in 2021.

48. My knowledge on asymptomatic testing was informed by scientists in PHE, SAGE and international literature. Some respiratory viruses are known to shed and transmit in the incubation period (prior to the onset of clinical symptoms) including influenza and rhinovirus. However, the original SARS Cov virus did not appear to transmit much if at all, asymptomatically.

49. Early in 2020 there was little evidence apart from a journal report [**Exhibit: YD2/27** **INQ000320601**] that asymptomatic transmission in the SARS Cov-2 virus could occur. This was changing as early evidence – including eventually published concerning the cruise ship The Diamond Princess - appeared in literature and in March the European CDC published a paper demonstrating via modelling how

asymptomatic infections may have played a role in transmission **[Exhibit: YD2/28 INQ000233785]**. The nature of asymptomatic transmission was still debated, and I noted in early April 2020 WHO indicated that there were "*few reports of laboratory-confirmed cases who are truly asymptomatic, and to date, there has been no documented asymptomatic transmission*." **[Exhibit: YD2/29 INQ000234308].** Further evidence on this aspect emerged in the second half of April 2020 and the results of the PHE Easter 6 Study **[Exhibit: YD2/30 INQ000320602** provided an important study with a larger dataset of cases. This led to changes in testing guidance on a precautionary principle in mid-April with respect to vulnerable people **[Exhibit: YD2/31 INQ000279924].** The nature and scale of asymptomatic infection continued to be discussed well into 2020, although it was accepted early on that it could occur, including by myself.

50. By early summer 2020 more research was available on the immunology of people in the healthcare system who were infected with SARS-Cov-2 but remained asymptomatic. This indicated that asymptomatic infections did occur but appeared to lead to a less robust immune response subsequently. The SIREN Study (SIREN- SARS-COV2 immunity and reinfection evaluation) **[Exhibit: YD2/32 INQ000320603]**, a collaboration between Public Health England, academia and the NHS, provided information from the early autumn of 2020 about immunity and re-infection in healthcare workers. Subsequently I was informed by the Vivaldi study **[Exhibit: YD2/33 INQ000106159]**, which represented a collaboration between University College London, the Office for National Statistics (ONS) and Public Health England concerning 248,594 staff and 160,033 residents of care homes (and 95% of all homes were contacted in the early summer of 2020). This is dealt with in the M2 corporate statement at paragraph 640 and copied below.

640. The Vivaldi study commenced in June 2020, led by University College London, and funded by NHSTT then UKHSA. This collected qualitative and quantitative data on care homes to understand working conditions and the spread of infection and immunity in care home populations. Its findings have been used to inform the ongoing policy response, including vaccine recommendations. Other studies on specific groups and settings, such as for children and adults with learning disabilities, homeless shelters and prison populations, were helpful in exploring the impact of the pandemic on these groups and further description of these studies is provided in Section 5. ***[Exhibit:JH2/510 – INQ000106159]****.*

In June 2020 a SAGE working group on care homes to which PHE also contributed summarised more evidence which was taken into policy by the SoS so that testing of all care home staff and residents was required whether or not they had symptoms of COVID-19 **[Exhibit: YD2/34 INQ000192110] [Exhibit: YD2/35 INQ000320604**

51. The initial findings of the Vivaldi Study were that:

i. The likelihood of infection and/or outbreaks (assessed using odds ratios) was reduced in Long Term Care Facilities that paid sickness pay, cohorted staff (such that staff caring for infected residents did not care for other residents), did not employ agency staff and had higher staff to resident ratios.
ii. The likelihood (odds) of infection and outbreaks was increased in facilities with higher numbers of admissions, poor compliance with isolation, "for profit" status, and lower cleaning frequency in communal areas.
iii. There was no clear association with the use of PPE.

52. I have been asked to comment on the SAGE 26 minutes of a meeting on 16 April 2020 and the decision to not put PHE forward to undertake what became the ONS COVID-19 Infection survey. At the time this was a decision I needed to take to avoid over-promising on work requested. I judged that PHE could not deliver this work without substantial additional support which was not offered at the time of the request. With hindsight I might have asked for more resource. The reality was that PHE did not have the substantial operational or research capacity to undertake work at this scale. There were approximately 300 people in the PHE Intelligence function supporting increasingly complex daily collection, assurance, surveillance and presentation to multiple audiences including by public dashboard; and 420 in the health protection teams supporting the 317 local authorities and seven regions in England, who were all extremely tied up with local outbreak control at this point. Nevertheless, PHE did contribute to the survey with senior scientific support which was evidenced in several publications. I made the decision in the interests of avoiding delay in instigating this survey- which was undertaken well by the ONS with PHE assistance.

53. I was not involved in Exercise Alice. This is dealt with at paragraph 378-381 of the Module 1 corporate witness statement as follows:

Exercise Alice (for MERS), February 2016

378. Exercise was commissioned by DHSC.

379. Exercise purpose: Exercise Alice (held on 15 February 2016) was a tabletop exercise to explore the challenges that a large scale outbreak of MERS-CoV could present nationally to health partners in England. The exercise was prompted by a request from the CMO and was focused on two stages of response: initial actions and public health response and the health care aspects of a wider spread of cases. Participants in the exercise included representatives from NHS England, PHE and the DHSC. Additionally, observers from the Cabinet Office, the Devolved Administrations and GO-Science attended.

380. Learning: As the commissioning organisation, DHSC retained responsibility for allocating actions and embedding learning.

381. I exhibit the exercise report ***[Exhibit: JH/M1 0102 - INQ000090431]***

54. I have been asked if limitations on testing constrained options and limited the knowledge base about the disease. Capacity and an end-to-end system to effectively use the output of testing were initially a major constraint. The question of how much testing was required early on was important and not fully addressed, although the need to scale-up the testing system for COVID-19 was acknowledged and the response was unprecedented. Without a standing capacity to do this, that PHE had no remit or funding to provide, prioritisation was essential and did provide knowledge about those entering the health care system, which was essential in both diagnosis in hospital, and in understanding whether those entering health care were carrying the virus already.

55. Many other major constraints on knowledge in the early months included the need to know more about the clinical impacts of the virus on various members of the population with and without risk factors and established other disease; whether children were actually at lower risk; the changing nature of the case definition due to understanding which symptoms were indicative of severe disease progression (including unusual manifestations in adults and children), and eventually how importations from Europe during the early weeks of 2020 had played an important role in community seeding at very large scale.

56. PHE had no formal remit for the social care sector. However, the management of local infection outbreaks was usual business for the PHE health protection teams in every region. I was aware of the need for guidance that accounted for current knowledge on the SARS-Cov 2 virus to be issued to vulnerable settings. This was issued along with guidance for other sectors in February 2020 **[Exhibit: YD2/36 INQ000223341]** addressing outbreaks of acute respiratory infections in care homes (and other settings). Such guidance built on existing good practice and would have been familiar to care homes **[Exhibit: YD2/37 INQ000223342]**. This included advice on isolation of infected patients and on testing suspected cases and management of contacts, including guidance on the circumstances in which self-isolation was required, both in respect of staff and care home residents, infection prevention protocols and decontamination advice. It reflected knowledge at the time of the 'contain' phase **[Exhibit: YD2/38 INQ000320605]**. Please also see paragraph 637-640 of the M2 corporate statement [INQ000251906] relating to care homes. I also note that there will be another Inquiry module relating to care homes in the future.

57. In March 2020 senior members of my team were coordinating with the PHE guidance team and the DHSC on the increasing need for guidance and advice for the social care sector. Between 29 February 2020 and 1 March 2020, PHE had circulated internally three proposed versions of updated guidance on social care which was being prepared for the "delay" phase of the pandemic. This reflected the need to update the February PHE Guidance. **[Exhibit: YD2/39 INQ000320606] [Exhibit: YD2/40 INQ000320607] [Exhibit: YD2/41 INQ000320608].** It aimed to ensure care settings had appropriate up to date advice on mitigations to reduce transmission; and advice on how to manage suspected or confirmed cases if there was the possibility of increased cases in the community.

58. On 12 March 2020 the government announced that it was moving its COVID-19 response from the 'contain' to the 'delay' phase, after the UK's CMOs raised the risk to the UK from moderate to high. The updated social care guidance, which I and my senior advisers agreed, was initially sent to the Secretary of State for Health and Social Care and CMO on 4 March 2020 but was delayed so that all guidance pertaining to the new phase of the pandemic would issue simultaneously (see below) **[Exhibit: YD2/42 INQ000300278]**. As a result, on 13 March 2020 the February PHE guidance was withdrawn, and superseded by the March PHE

guidance, which reflected the changing phases of the pandemic **[Exhibit: YD2/43 INQ000223345**].

59. The major concerns I encountered in March and early April 2020 in relation to the NHS and care homes were about (a) the need for bed capacity in the NHS for very ill patients (b) hospitals being dangerous environments for those with poor immune systems and (c) the ability of care homes to cope with demand sufficiently in a very risk averse environment where staff could be required to remain off work for long periods of isolation particularly where it was unclear that there was contact with an actual case. My PHE colleagues and I were equally concerned about the risk of infection in the system and guidance provided (exhibited below) in this period stressed the importance of the highest standards of infection control, isolation of residents on suspicion of infection or contact and if possible, cohorting policies in operation **[Exhibit: YD2/44 INQ000233798] [Exhibit: YD2/45 INQ000320609] [Exhibit: YD2/46 INQ000320610] [Exhibit: YD2/47 INQ000320611**

60. This was a period of serious tension about the best handling of competing needs. It was also a period where there was continued debate about the nature of the virus and the efficacy of testing, particularly blanket testing for asymptomatic cases. This view did change. As better research appeared in late April and May, backed up in PHE by genomics testing, guidance was updated and mass testing in care homes was put in place by government by mid-summer 2020. The resolution of these competing demands is a potentially important point for future learning.

61. PHE collated infection outbreak data from care homes as part of normal business from the commencement of 2020 **[Exhibit: YD2/48 INQ000120160]**. This was normally notified to the regional health protection teams from the home or the local authority and entered on the HPZone data system. Deaths in care homes were also tracked. Section 2 of the M2 corporate statement [INQ000251906] deals in detail with data collection, dissemination, and analysis.

62. From mid-March PHE was collating, via regional and national epidemiology teams, daily case rates in care homes by region including new cases within the past 24 hours and care homes closed to admission. This required the setting up of a system that matched CQC information, lab reports and epidemiological data. PHE also collaborated with academic partners and CQC to model the possible

evolution of the pandemic in care homes. Data in the early months of 2020 was not readily available to enable complete confidence but this did improve by late autumn 2020.

63. PHE's own research and genomics identified the details of cases infected in 6 care homes via the Easter 6 study in April 2020 **[Exhibit: YD2/30 INQ000320602** This significant study showed that despite stringent infection control policies in action, there were multiple outbreaks among staff and residents and commonality between the virus genomic profile in the six related homes. The inference was of multiple introductions across care homes and a high level of positive cases with no known symptoms in staff and residents. In May 2020 a questionnaire survey **[Exhibit: YD2/49 INQ000223887]** was undertaken by PHE epidemiologists to ascertain the time periods for recovery from COVID-19 in a multi-regional sample of care homes. Later in 2020 alternative mechanisms were developed for specific settings. To enhance surveillance of outbreaks in care homes, PHE developed a system for most accurately identifying COVID-19 outbreaks in care homes using matched postcodes for registered care home providers. This is dealt with in the M2 corporate statement [INQ000251906] at paragraph 740-743. Although this system lacked the precision of a postcode in identifying a specific residential property, it provided a systematic means of identifying and monitoring potential care home outbreaks across England early in the pandemic. This was shared daily with local partners. The PHE work was supplemented by the commissioned Vivaldi studies undertaken by UCL and ONS.

64. Furthermore, PHE joined with the newly created Joint Biosecurity Centre in May 2020 to provide daily situational awareness briefs which summarised a range of COVID-19 information to local authority level on case rate and case rate change, hospitalisation, variants, care homes, mortality and vaccination uptake. This was presented at the formalised bronze, silver and gold meetings every week from July 2020.

65. I cannot comment on the statement by the SoS relating the intention to 'throw a protective ring around our care homes' other than to state the nature of my own work and that of my team from early January 2020. The social care section of the DHSC may be more appropriate to ask questions on this. I am aware that in April 2020 the Government made £1.3 billion available to support enhanced discharge from the NHS, and this funding was agreed to be drawn on for this alternative provision of accommodation if needed. Care homes were identified as a priority

setting for testing and surveillance focus when choices needed to be made by Government regarding scarce resources and capacity (see above).

66. PHE's remit in 2020, as for previous years, included a requirement to secure improvements to the public's health, including supporting the system to reduce health inequalities, please see the M1 corporate witness statement [INQ000148429] paragraph 68-70. This included development and dissemination of evidence on health inequalities, and the interventions with good return-on-investment for addressing these. The work in 2020 built on previous work, also outlined in Module 1, about regional and national surveillance, programmes and partnerships to address inequalities in accordance with relevant legislation. Prior to my appointment in June 2019 I led the first city wide health inequalities strategy in support of the Mayor of London, which included both communicable and non-communicable disease elements. When appointed as Medical Director for PHE my team played a major part in launching in autumn 2019 the Infectious Disease Strategy **[Exhibit: YD2/50 INQ000090352**] which highlighted the importance of encompassing inequalities reduction in infectious disease.

67. Much of the recent learning about the interplay of risk factors to drive inequalities has come from work on non-communicable disease although the earliest public health services grew from the interplay of poor housing, poverty and infection particularly in urban areas. There was considerable risk in the population prior to 2020. Factors known to be associated with the 2009 flu pandemic had increased in prevalence – such as obesity, and these risk factors are not evenly distributed in the population. The population is ageing in the UK and population density is high. Life expectancy improvements had stalled and research I was involved with demonstrated that deterioration at very local level were highest in areas of deprivation **[Exhibit: YD2/51** **INQ000320616** **]** (Lancet Public Health 2021)

68. My other research on periods prior to and during the 2020 pandemic identify significant health and social risk and poor outcomes experienced unequally in the population **[Exhibit: YD2/52** **INQ000320617** (BMJ Open 2021).

69. PHE also produced detailed profiles of population risk and outcomes at regional and local levels and the Health Profile for England **[Exhibit: YD2/53 INQ000101222]** provided a national and international comparison of outcomes before 2020. The 2021 Profile particularly focussed on health inequalities.

70. Inequalities in health are of concern in a number of population groups with protected characteristics; but are also evident geographically and in areas associated with high deprivation. Sometimes, but not always, these factors interplay.

71. My first concern about the impact of inequalities from COVID-19 was in relation to age, which led to our early guidance including concerning infection control in care homes. Older adults were subsequently shown to be disproportionately affected by COVID-19 deaths: 92% of deaths were in people aged 60 and over; and over half (58%) were aged 80 or older. Men were at greater risk of COVID-19 death, particularly during the first wave when the age-standardised mortality rate for men was double that of women.

72. The early collection of the First 100 cases (see paragraph 658 of the M2 corporate witness statement below) sought details recommended in our National Incident Emergency Response Plan **[Exhibit: YD2/54 INQ000320618]** including demographics, ethnicity, country of birth, and pre-existing health conditions to obtain an understanding of those in the population who had been infected by COVID-19.

658. The primary objectives of the FF100 investigation were to collect data from laboratory confirmed cases of COVID-19 and provide estimates of:

a. clinical presentation and course of disease;

b. secondary attack rate (overall and by key factors such as by setting, age, and gender for various endpoints). The secondary attack rate is a measure of the frequency of new cases of an illness among the contacts of known cases in a defined period;

c. serial interval, defined as the period from the onset of symptoms in the index case to the onset of symptoms in a contact case.

73. I requested a search for early signals for differences in mortality from PHE analysts in late March /early April 2020, which was conveyed to SAGE (although more data was required). The CMO commissioned a full report on these signals which was available in May 2020 and presented to Ministers **[Exhibit: YD2/55 INQ000089686]**. The results showed that there was an association between belonging to some ethnic groups and the likelihood of being tested, testing

positive, being hospitalised, receiving intensive care, and dying with COVID-19. These associations existed even after controlling for the effects of age, sex, region and deprivation. These disparities were observed consistently throughout the pandemic. Some disparities were passing, such as differences in COVID-19 mortality by region and population density. For example, the most notable regional difference in COVID-19 deaths was in London during the first wave, with almost double the age-standardised mortality rate observed in other regions. Likewise, in the first wave there was a clear relationship with higher mortality rates in areas with higher population density. However, after the first wave, trends by region and population density became less clear as COVID-19 spread through different geographies.

74. Professor Kevin Fenton was asked to oversee and lead PHE's work on COVID and BAME communities on 20th April 2020. This led to a further commissioned review of the wider impact of COVID-19 on inequalities in ethnic minority groups. An initial announcement of the review was included in Duncan Selbie's Friday Message to external partners on 24thApril 2020 **[Exhibit: YD2/56 INQ000320620.** There were two components: a wide-ranging epidemiological review led by PHE scientists and a structured community engagement led by Professor Fenton. This work was presented to the Equalities Ministers with a letter from the PHE CEO highlighting the findings along with the recommendations from the report **[Exhibit: YD2/57 INQ000101219] [Exhibit: YD2/58 INQ000196614]**.

75. The work had some impact. It raised national awareness and complemented work being led by academics and a subgroup of SAGE to which I contributed in 2021 with a report to SAGE on areas of enduring prevalence **[Exhibit: YD2/59 INQ000192116].** Colleagues and I kept a public focus on inequalities for example through research and blogging **[Exhibit: YD2/60 INQ000320621.** Information on ethnic status and COVID-19 outcomes became more sophisticated with new data techniques which could identify and sometimes predict through modelling the likely course of the pandemic in geographical areas. Daily public dashboards, initiated in the early months added new information and the WICH tool developed in May 2021 provided assessments of wider impacts of the pandemic.

76. In November 2020 I presented the results of a review, commissioned by DHSC, and based on the extrapolated data on the deaths of people with learning disabilities in England during the COVID-19 pandemic to senior clinicians to ensure learning was shared on the excess mortality in this group and that they

were also kept in sight during subsequent waves of the pandemic **[Exhibit: YD2/61 INQ000101220]**. It showed that between in the first pandemic wave, people registered as having a learning disability had a death rate involving COVID-19, 4.1 times higher than the general population after adjusting for other factors such as age and sex.

77. Also in 2021 the CHIME tool was provided which PHE used to bring together data relating to the impacts of COVID-19, for factors such as mortality rates, hospital admissions, confirmed cases, vaccinations and life expectancy. It presented the cumulative picture for the pandemic to date and data by month, and included breakdowns by region, sex, age group, ethnicity, deprivation and population density. The vaccination data available in 2021 included further breakdowns by country of birth, disability status, educational attainment, National Statistics Socio-economic Classification (NS-SEC), religion, rural-urban residency, and household tenure. I was not involved in this development.

78. Excess mortality reports (deaths over and above what would be expected) were produced weekly from July 2020 until May 2022 and are now produced monthly. Responsibility for producing the reports transferred to the Office for Health Improvement and Disparities on 1 October 2021. These profiles showed a high impact of the pandemic on older persons, those from Black and Asian groups and those living in the most deprived areas.

79. Research and a blog I co-authored served to encourage my colleagues and I to learn as quickly as possible from the early data and analyses on health inequalities and what can be done to mitigate them. My co-authored blog mentioned 'syndemic', a term to describe the interaction of social, environmental and biological factors to augment disease clusters **[Exhibit: YD2/60 INQ000320621** These clusters are not distributed evenly in the population. The term gained prominence in 2019 when a global commission on the 'obesity syndemic' was called by the Lancet **[Exhibit: YD2/62 INQ000320622**

80. Papers began to appear in the second wave of the pandemic about the likely interaction of factors that could augment inequalities. To some extent this trend was a continuation of previous findings about inequalities. In the early months the virus was novel and apart from signals from China about the ages most affected, it was not clear how it would affect the population biologically, bearing in mind that in 2009 and even in 1918 flu epidemics harmed younger population groups. Data

on enough numbers to make robust inferences to actual risk and outcomes were relatively scarce until April 2020. Furthermore, syndemics up to 2020 had mainly been researched in the context of non-communicable disease.

81. Long COVID was a term that emerged after the first wave of COVID-19 and is the subject of research because it was poorly understood. A good source of information is covid-19.nih,gov and a recent review provides some current findings **[Exhibit: YD2/63 INQ000320623]** I was approached by the NHS in the autumn of 2020 to provide some input to their own work on service responses to this condition. I agreed that colleagues from the health care team in PHE should contribute to joint NHS, academic and public health investigations of this condition which have continued over the course of the pandemic. I understand that input from my colleagues to the NHS response continues in 2023.

82. Non-pharmaceutical Interventions (NPIs) are those which do not involve medications or vaccination responses to infections. They may be all that is available in the early stages of a pandemic – as was the case in 2020. Specific NPIs were modelled and researched by members of SAGE to address which of these would best reduce transmission and protect the most vulnerable members of the population **[Exhibit: YD2/07 INQ000052106]**. The output of this work (which I personally was not involved in) was presented to government via COBR in early March. The major considerations in this were (a) protecting those who at the time were identified as most vulnerable – older people particularly aged over 70 years, those who were ill or at high risk of death from other conditions and combinations of these and (b) protecting the NHS from being overwhelmed. To some extent people with protected characteristics were in some of these groups and would benefit from access to the NHS. The closure of schools was always a concern because of its likely negative impact on children and this became a priority to re-consider as soon as possible, affecting as it would, those children already most educationally challenged.

83. PHE developed an advanced surveillance system for infectious diseases, during normal operations (see Section 4 of PHE's role in surveillance in the M1 corporate statement [INQ000148429] and paragraph 650 of the M2 corporate statement below). These systems of surveillance had worked well in the previous 8 years incorporating both international epidemiology, clinical and laboratory diagnostic information, a primary care surveillance system, and profiles of local outbreaks. However, the system needed enhancement when a whole population was at

potential risk of infection because the data were required in every part of healthcare and civil society. To give this richer picture, data collection needed in some cases to be set up anew; other data which already might exist had to be harvested from across government, commercial operators, academia, professional bodies and locally, and then shared in a way that was legally correct. Much of this did occur over 2020 and beyond and included the integration of wider data sources across government on transport, education, people's work and movements and the nature of housing and accommodation for the most vulnerable, and the details of people's location within the justice system; it all proved important in how the pandemic spread in the UK.

650. Public Health England (PHE) had an existing key role in undertaking surveillance of infectious diseases, as described in the remit letter 2019/20 ***[Exhibit: JH2/515 – INQ000090336].*** *These existing surveillance systems, many of which were adapted for COVID-19, are described in the following documents produced in 2014* ***[Exhibit: JH2/516 – INQ000119748]*** *and 2018* ***[Exhibit: JH2/517 – INQ000023027]****.*

84. In early 2020 the focus had to be on collecting and understanding the clinical features and severity of the virus and its impact on those infected. The First 100, COCIN and clinical surveillance supported this initially. National to local and public health system to NHS integrated data presentation and collection was time consuming. Other data integration was embryonic. My team spent an inordinate amount of time in February 2020 trying to get passenger lists from air transport companies. These mechanisms require a pre-existing data infrastructure and standing agreements about sharing data.

85. In the early months of the pandemic there was a much more informal process of interaction with government than subsequently when a system of Bronze/Silver/Gold meetings in July 2020 provided better governance and communication across the national, regional and local levels and allowed agreed health input into government decision-making. I was involved in both approaches but was much clearer after June about journeys the records and information packs we provided had taken and the consequent decisions made, than in the early months. I was not party to the minutes and therefore not always clear where our information was going and who was issuing demands. At the request of the SoS, PHE developed the UK COVID-19 Dashboard with the support of a platform from the NHS in March 2020 which was highly accessed by the general population.

86. The Joint Biosecurity Centre was established in May 2020 to provide additional and complementary analyses and assessment of data and data derived evidence to build on that already in place at a local and regional level across the UK. The coordination of skills between the JBC and Public Health England enhanced the capacity of the specialist response and situational awareness.

87. There were challenges in sharing data from national to local – careful and legal sharing was required by instructions from DHSC Data Commissioner. The curation and analysis of data during the pandemic also required new resources and infrastructure which were not already established within PHE or elsewhere. Obtaining, sharing, and publishing data even posed significant challenges across organisations within the health family, as data sharing agreements were not in place for all required connections and had to be established. Directors of Public Health expressed early on that it was difficult to obtain data from the NHS that might have a bearing on their own population protection roles, so sharing with local government was undertaken with several workarounds. This was undoubtedly frustrating and time consuming for all involved in the response locally. Data sharing agreements could have been set up earlier than 2020 in my view.

88. PHE's budget to spend on its internal services for the year 2019/20 was £287m. The detail of PHE and funding are set out in the Module 1 corporate witness statement [INQ000148429] paragraph 44 and 91-101. This had fallen from £297 in 2017 which itself reflected a saving of more than 30% (£145m) since its inception in 2013. Looking into the financial year 2020/21 PHE had been approached for savings. For that operating budget PHE was expected to deliver ten major functions including microbiological, environment, radiation and toxicology, several health improvement services, screening and immunisation advice within the NHS, knowledge and intelligence services, regional health protection and support to local government, nursing, and global health. While over half of the staff were involved in some way in infection and health protection, the others were mainly involved in non-communicable disease, surveillance, and disease registration work. Regional teams offered support to local government in both communicable and non-communicable disease and were important links between national and local public health services during the pandemic. All these staff stood up willingly and supported various parts of the pandemic from the earliest months.

Internationally, many national public health institutes encompass some form of integrated approach to health.

89. My role in the early months of the pandemic included getting both those normally involved in specialist infection services and those in non-infection services to act as internal surge and manpower capacity for the increasing scale and pace of demand including in our guidance work, services across government, Parliament, and to the public. Nevertheless, by late April 2020 our regional health protection services numbered just 420 whole time equivalents and our national teams had been working very long hours – in some cases providing 24-hour services, since early January 2020. During subsequent interviews I conducted with my equivalent colleagues internationally, it was clear that their experience was similar but (a) they either had more capacity they could call on or (b) they considered they were fortunate because they were not the main 'front line' for such a long period. A call had been out across government in February 2020 for help to PHE particularly with guidance and administration services which resulted in around nine responses. I am not clear whether that reflected a lack of interest or lack of perceived skill to come over to help PHE at that time.

90. In 2009 most of the public health services were in the NHS. Senior colleagues were offered the full heft of that service if required. By 2013 even the full public health capacity had been split and decanted into local and national government and was isolated from the NHS.

91. From my own international interviews in 2021 it became clear that there is no agreed model for public health internationally. As stated above, national institutes frequently adopt an integrated communicable/non-communicable approach in their set up; others focus solely on infection; some operate at a national level only, others have links into regional and local services. The links between infection and overall wellbeing were highlighted in the pandemic. In May 2020 Ministers asked PHE and DHSC for initial ideas to be worked up for a national Wellbeing Behaviour Change campaign, to rally the nation to get fighting fit to move into the recovery phase. I have exhibited a submission requested by the SofS from PHE endeavouring to get this national 'Wellbeing' programme up and running in May 2020 **[Exhibit: YD2/64** **INQ000320624** However, access to surge capacity, pre-existing memoranda for data sharing and standing contracts with providers of specialist services might have helped me and my colleagues in the first wave. Concerning research, PHE did have relationships with a range of academic

institutions around England, via honorary contracts with individuals, and in some cases, research was commissioned on specialist topics, for instance on tobacco control.

92. The 15 Health Protection Research Units were set up and funded via NIHR for some years prior to 2020 **[Exhibit: YD2/65 INQ000320625]**. They were topic specific; for example, on respiratory disease, vaccination, zoonotic diseases, genomics, modelling, and infections in healthcare settings, but also on environment, genomics and modelling and several of these units were active during the pandemic including on respiratory disease, behavioural science, infections in certain settings and vaccination implementation. They incorporated academic partners who could sometimes feel they were giving much time pro bono which may have led to less available capacity; more fundamental was the need for a clear national public health research strategy as applied to these units.

93. I have been asked to comment on comments of the Prime Minister. I do not know who exactly the Prime Minister had in mind when making comments on 30th June 2020 or whether this was solely directed to PHE. I met the Prime Minister on several occasions including in person on Sunday 1st March 2020 at our laboratories in London. He was shown our 24-hour clinical working, and we discussed the epidemiology of the pandemic. He expressed his satisfaction and appreciation **[Exhibit: YD2/66 INQ000320626]**

94. My team did visit Parliament on several occasions to offer advice on protection and testing personally to MPs; and we set up a Parliamentary helpline in the early months or 2020. PHE did its best – with the resources provided to it by the government, with expert staff working tirelessly and relentlessly, and often at personal cost to themselves and their families. We worked 16-hour days in very tense and demanding environments, travelling to work locations that demanded our presence despite any personal risk to us. We did our best within and beyond our capacity and regret we could not have done better. However, to be briefed against relentlessly from April 2020 without the right of reply, and to find that we had been 'abolished' via a leak to a Sunday newspaper in August 2020 would seem to me to be below the standards expected towards those working in public life to serve the population.

95. I would refer to the statement of Duncan Selbie in Module 1 **[Exhibit: YD2/67 INQ000192268]** about the leadership, remit and resource afforded to PHE plus

the references I have referred to in the Module 1 corporate statement [INQ000148429] that also deals with the structure and governance of PHE in section 2 paragraph 200-263.

96. My colleagues and I stood up to offer the best we could under the circumstances in the first wave until very much more resource (£37 billion for NHS T&T compared to £287million for PHE) was afforded to a new model of public health service. At full funding during 2021 this amounted to approximately 125 times the entire operating budget of PHE in 2019/20. As far as delivery prior to 2020 is concerned I cannot comment on the national service, other than to refer to regular letters of satisfaction from Ministers on our delivery and a clear line of governance via the DHSC on our delivery framework which was monitored via the Director General with responsibility for PHE formally with responsible officers quarterly since 2013. I had similar feedback in relation to my statutory duties as Regional Director for London up to my national appointment and continued to contribute to quarterly monitoring during the pandemic.

97. Regarding decisions made about PHE in 2020, it was not clear to me (and indeed many PHE staff) – nor is it still- where, when, how and by whom the decisions about its future or why a range of options were not explored more explicitly. The impact of a reducing executive and leaked announcements had an impact on staff who were understandably upset and demoralised. I took it as my role to ensure that whatever arrangements were in place, our professional and pandemic critical staff continued to work to their best ability. This role I continued to undertake until October 2021.

98. My main concern in late January – February 2020 was that my situational awareness advice was not always welcome. This led to a distancing for a period, from offering direct advice. It was never clear which parties were most offended and why – a situation I encountered when professional information was presented in good faith to inform the public. There was general confusion and increasing concern as to who was in charge in government and why delays were occurring in getting, for example, key guidance documents cleared and out to the public. Eventually in May 2020 a 'Triple Lock' (PHE/DHSC/DCMO) system was agreed to expedite that problem. The instigation of COBR M and COBR O led to a clearer line of accountability and instruction, and I attended COBR O regularly, responding to requests for reports or information for example on advice to business, prison and homeless health respectively.

99. Finally, I have been asked about work that PHE and the University of Cambridge undertook in June 2020. PHE modellers at Porton Down innovated a modelling collaboration with the Universities of Cambridge and Manchester respectively in the early months of the first wave of the pandemic to support SAGE and other modelling colleagues contributing to SAGE. This collaboration was always a constructive contributor to SAGE and did not ever seek to undermine SAGE in any deliberate way. In (from memory) August 2020 the university modellers identified a way of demonstrating the reproduction number at a level lower than national and put this on their website. Following my communication with SAGE this was taken off our website as it was understood that multiple sources of information could be confusing. For this reason, it was considered mis-timed, although not inaccurate.

100. I have been asked to consider any lessons learned. These are my personal reflections:

i. Health is global and international cooperation on the most pressing lessons from the 2020 pandemic will be essential. Lessons on whether preventive actions in advance can reliably lead to harm reduction will be particularly useful.

ii. Preparedness will need to entail how a national strategic aim is articulated, understood, communicated, and executed early in a future epidemic or pandemic.

iii. Deep knowledge beyond the behaviour of the infecting agent is required to mount an effective public health response. This is information that is held in non-health locations in government, public and commercial sectors. Data sharing will be essential and can be prepared for. Health actors need to practice how to access and deploy this information legally and at speed.

iv. Clear, current and unambiguous communication that can be referenced easily about the roles and responsibilities of key national organisations is as important as information about what is reasonable to expect from specific interventions such as contact tracing in major outbreaks or epidemics.

v. The role of the public health system in the UK – working as a system as opposed to individual operating components - needs agreement at government level. This includes the interplay of core functions for the benefit

of the population and a fair level of funding to operate on the pressing challenges of today and the future.

vi. The pandemic exacerbated inequalities in health and preventing further deterioration will require continual commitment at every level of government and the health system. This includes a constant focus on equity in health and continual dialogue with local communities about effective actions to promote this.

vii. The longer health consequences of the 2020 pandemic are complex and still poorly understood. High quality multi-disciplinary research should inform policy responses in this area.

101. I believe that the facts stated in this witness statement are true. I understand that proceedings for contempt of court may be brought against anyone who makes, or causes to be made, a false statement in a document verified by a statement of truth without an honest belief in its truth.

Signed: **Personal Data**

Dated: 17 October 2023